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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROSHI MORIKAWA

Appeal 2010-001322
Application 10/521,166
Technology Center 2600

Before JOHN C. MARTIN, ROBERT E. NAPPI, and
THOMAS S. HAHN, *Administrative Patent Judges*.

MARTIN, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery (Continued on next page.)

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 3, 7-9, 17, 18, 22, 23, and 25-29. Claims 4 and 5 stand objected to for depending on a rejected claim. Final Action 20.

An oral hearing was held on January 11, 2011.²

We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

A. Appellant's invention

Appellant's invention is an output apparatus capable of transforming and outputting bitmap data. Specification 2:14-15.³

First through fourth embodiments of the invention are depicted in block diagram form in Figures 1, 10, 17, and 26, respectively (*id.* at 5:30-31; 6:15-16, 29; 7:11). Each embodiment includes a vector data production unit (e.g., 1042 in jaggy elimination unit 104 of Figure 1), which produces vector data that will form the smoothed version of an outline from the multiple coordinate sets of straight lines that form the jagged outline of the bitmap

mode) shown on the PTOL-90A cover letter attached to this decision.

² “[A]rguments not presented in the brief or reply brief and made for the first time at the oral hearing are not normally entitled to consideration.” MPEP § 1205.02 (8th ed., rev. 7, July 2008) (citing *In re Chiddix*, 209 USPQ 78 (Comm’r Pat. 1980)).

³ References herein to Appellant's Specification are to the Application as filed rather than to corresponding Patent Application Publication 2006/0119897A1.

data (*id.* at 12:12-14). The rejected claims are directed to the second and fourth embodiments.

Figure 6 is reproduced below.

FIG.6

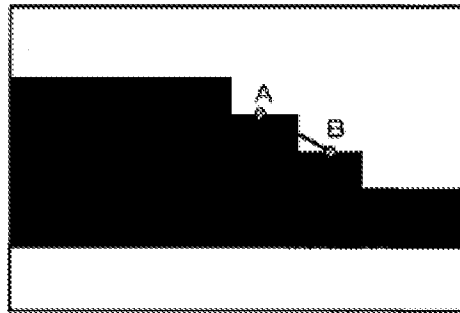
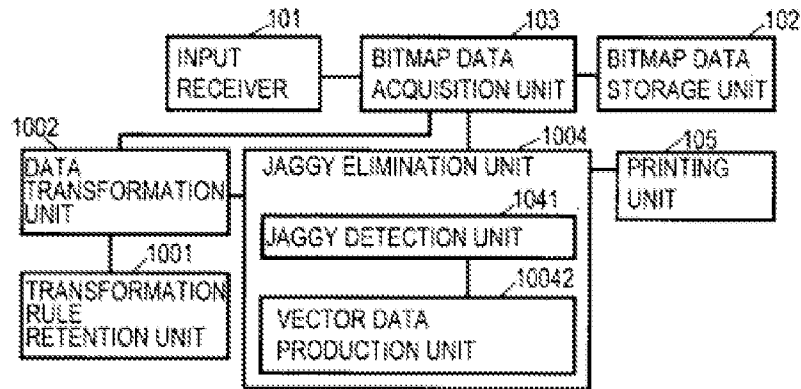


Figure 6 illustrates how a jaggy is eliminated (*id.* at 6:6-7). Coordinate values are generated representing a straight line by which two straight lines that form a stair step falling within the predetermined range are interconnected at each midpoint (point B and point A) (*id.* at 13:25-27). Interconnecting two straight lines is repeated for the whole outline portion of the bitmap data (*id.* at 13:28-30). The application of vector data to an outline of bitmap data is a well-known technique (*id.* at 14:4-5).

Figure 10 (second embodiment), to which claim 7, for example, is directed, is reproduced below.

FIG.10



The data transformation unit 1002 transforms part of the bitmap data in accordance with a transformation rule stored in the rule retention unit 1001 (*id.* at 16:15-16). Figure 13 is reproduced below.

FIG.13

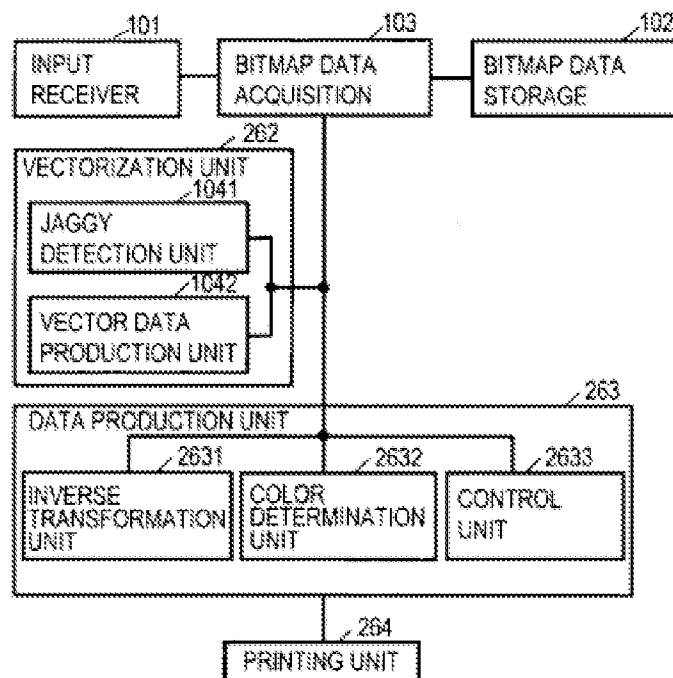
| ID | MATRIX BEFORE TRANSFORMATION | MATRIX AFTER TRANSFORMATION |
|-----|------------------------------|-----------------------------|
| 1 | | |
| 2 | | |
| ... | ... | ... |

Figure 13 is a data transformation rule management table retained by the rule retention unit 1001 (*id.* at 18:30-31). The table is composed of at least one record that contains data under the headings “ID,” “Matrix Before

Transformation,” and “Matrix After Transformation” (*id.* at 18:31-33). If analysis of the contour of a bitmapped graphic reveals it has a pattern that matches any one of the matrices appearing under “Matrix Before Transformation,” that pattern is replaced with the corresponding matrix appearing under “Matrix After Transformation” (*id.* at 19:2-5).

Figure 26 (fourth embodiment), to which claim 3, for example, is directed, is reproduced below.

FIG.26



In this embodiment, the data production unit 263 includes an inverse transformation unit 2631 and a color determination unit 2632 (*id.* at 22:25-26). The meaning of inverse transformation is described with the aid of Figures 29 and 30, which are reproduced below.

FIG.29

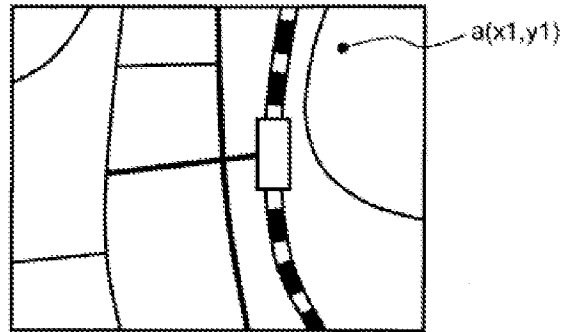
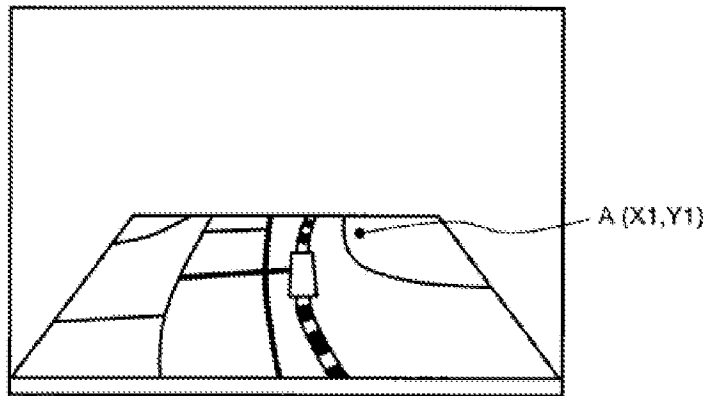


FIG.30



Bitmap data as shown in Figure 29 is transformed so as to create a bird's eye view as shown in Figure 30 on a display (*id.* at 28:30-31). For this transformation, a calculation is performed so that the coordinate information (x, y) on the bitmap data in Figure 29 results in the coordinate information (X, Y) on the display of Figure 30 (*id.* at 28:31-33). The function that executes this transformation can be described as $(X, Y)=f(x, y)$

(*id.* at 28:33-34). Thus, Figures 29 and 30 show the bitmap data respectively before and after being transformed using function (f).

The fourth embodiment employs the inverse function of function (f) (*id.* at 29:5-8). Specifically, the “first coordinate” information (X1, Y1) that specifies the position *A* on the bitmap data after transformation in Figure 30 is transformed using the inverse function (f^{-1}) into “second coordinate” information (x1, y1) that specifies the position *a* on the bitmap data before transformation (Fig. 29) (*id.* at 29:10-15). Next, “the color of the position *a* is setup for a dot including the position *A* (X1, Y1)” (*id.* at 29:15-16), which we understand to mean that the color of position *a* in Figure 29 is determined and then assigned to the dot that contains the corresponding position *A* in Figure 30. This color selection process is described with the aid of Figure 31, which is reproduced below.

FIG.31

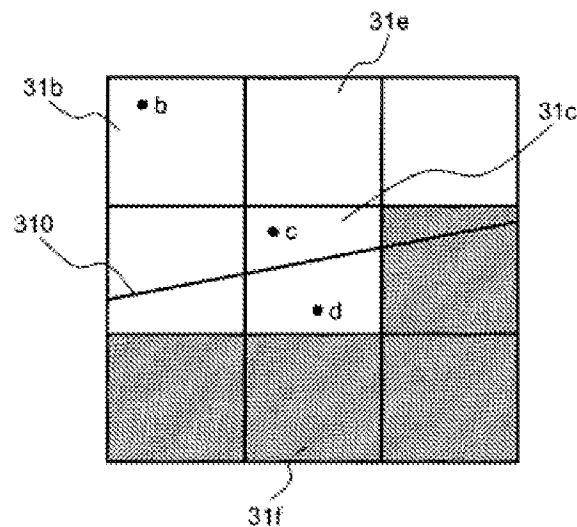


Figure 31 shows second coordinate information that was transformed from first coordinate information using the inverse function (*id.* at 29:21-23). Because dot 31b, which contains second coordinate information *b*, is not passed through by the vector data line 310, the color of second coordinate information *b* is selected to be used as the color for a dot including the position specified by the corresponding first coordinate information (not shown) in Fig. 30 (*id.* at 29:23-28). On the other hand, vector data line 310 passes through a dot including the positions specified by the second coordinate information *c* and *d* (*id.* at 29:29-30). Therefore, the color of the dot (i.e., dot 31e) immediately above the dot 31c is selected as the color for second coordinate information *c*, and the color of the dot (i.e., dot 31f) immediately below the dot 31c is selected as the color of the second coordinate information *d* (*id.* at 29:30-30:6). These colors are then placed in a memory or the like to be used as the colors for the dots containing the corresponding first coordinate information in Figure 30 (*id.* at 30:6-8).

Appellant's Specification explains that "[t]he color information may be black and white binary, or three-valued or more." (*Id.* at 9:10-11).

B. The claims

The independent claims before us are claims 3, 7, 17, 18, 22, and 23. Claim 3, which is directed to the fourth embodiment (Fig. 26), reads as follows:

3. An output apparatus for transforming and outputting bitmap data comprising:

a bitmap data storage unit for storing bitmap data before transformation;

a vectorization unit for producing first vector data by vectorizing at least one part of said bitmap data;

a data production unit for producing bitmap data after transformation based on an inverse function of a predetermined calculation, said bitmap data before transformation, and said first vector data; and

an output unit for outputting said bitmap data after transformation produced by said data production unit,

said data production unit comprising:

an inverse transformation unit for producing second coordinate information by inversely transforming first coordinate information that specifies a target dot to be processed, using said inverse function of said predetermined calculation;

a color determination unit for determining a color of a position, if the first vector data is in a passing relationship with a dot represented by the second coordinate information, the color of the position specified by the second coordinate information being determined based on the position specified by said second coordinate information, said first vector data produced by said vectorization unit[,], and a color of a dot on said bitmap data, and then setting up said color determined thereby for said target dot specified by said first coordinate information; and

a control unit for controlling so that said second coordinate information production by said inverse transformation unit and said dot color determination by said color determination unit can be performed on all dots on bitmap data to be outputted.

Claim 7, which is directed to the second embodiment (Fig. 10), reads as follows:

7. An output apparatus comprising:

a bitmap data storage unit for storing bitmap data before transformation;

a bitmap data acquisition unit for acquiring bitmap data from said bitmap data storage unit;

a transformation rule retention unit for retaining at least one bitmap data transformation rule that is composed of a pair of information on certain part of said bitmap data and information indicating vector data that forms an image after transformation of said certain part;

a data transformation unit for transforming part of said bitmap data according to said rule, checking whether or not the information on certain part of bitmap data obtained by the bitmap data acquisition unit matches the information on certain part of bitmap data retained by the rule retention unit; and, if matched replacing the information on certain part of bitmap data obtained by the bitmap data acquisition unit with a pair of information indicating vector data having an image resulting from the transformation of the certain part; and

an output unit for outputting data that is produced based on transformation results from said data transformation unit and processing results from said jaggy elimination processing unit.

Claims App. (Br. 58-60).⁴

C. The references

The rejections before us are based on the following references:⁵

⁴ Appeal Brief filed May 14, 2009.

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Application 10/521,166

| | | |
|--------|--------------------|--------------|
| Ozaki | US 4,736,399 | Apr. 5, 1988 |
| Ishida | US 6,232,978 B1 | May 15, 2001 |
| Karidi | US 2003/0123094 A1 | July 3, 2003 |

*D. The rejections*⁶

Claims 3, 17, 22, 25, and 26 stand rejected under 35 U.S.C. § 103(a) for obviousness over Ishida in view of Ozaki. Final Action 6, para. 8.

Claims 7-9, 18, 23, and 27-29 stand rejected under § 103(a) for obviousness over Ishida in view of Karidi. *Id.* at 14, para. 9.

THE REJECTION OF CLAIMS 7-9, 18, 23, AND 27-29
(ISHIDA IN VIEW OF KARIDI)

A. Claims 7-9 and 27

The Examiner, comparing claim 7 to Ishida, finds that Ishida discloses an output apparatus including a bitmap data storage unit, a bitmap data

⁵ Although the last page of the March 13, 2009, “Notice of Panel Decision from Pre-Appeal Brief Review” cites H. Tang, et al., *Monochrome image representation and segmentation based on the pseudo-color PCT transformations*, Engineering in Medicine and Biology Society, Proceedings of the 23rd Annual Int’l Conf. of the IEEE (2001), vol. 3, pages 2696-99 [hereinafter “Tang”], the Examiner states at page 39 of the Answer that Tang is not relied on to reject any claim. It is therefore not necessary to address Appellant’s discussion of Tang at pages 39-40 of the Appeal Brief.

⁶ The rejection of claims 3-5, 17, 22, 25, and 26 under 35 U.S.C. § 112 given at page 5, paragraph 6 of the Final Action was withdrawn at page 2 of the December 24, 2008, Advisory Action. The rejection of claims 7-9 and 27 for obviousness-type double patenting given at page 2, paragraph 3 of the Final Action is not repeated in the Answer and is therefore presumed to have (Continued on next page.)

acquisition unit, and an output unit and relies on Karidi for a teaching of the remaining recited elements. Final Action 15. Appellant argues that the Examiner's reliance on each of Ishida and Karidi is misplaced.

Regarding Ishida, the Examiner (Final Action 15) reads the recited "bitmap data storage unit for storing bitmap data before transformation" (i.e., correction) on Ishida's column 3, lines 30-33 and column 14, lines 41-43, which respectively describe storing coarse (i.e., uncorrected) bitmap data on a disk device 72 (Fig. 15) and a hard disk 214 (Fig. 22). The Examiner (*id.*) reads the recited "bitmap data acquisition unit for acquiring bitmap data from said bitmap data storage unit" on, *inter alia*, CPU 71 (Fig. 15), which is used to read data from the disk device 72. The Examiner (*id.*) further reads the recited "output unit for outputting data that is produced based on transformation results from said data transformation unit and processing results from said jaggy elimination processing unit" on "col. 3[,] line 6 [sic; lines 5-6]," which state that "[t]he results of processing are smoothed in a second smoothing device 330, whereby a final output is obtained."

Appellant has not specifically pointed out any error in these positions of the Examiner. Instead, in a style of argument that is repeated throughout the Appeal Brief and Reply Brief, Appellant:

(a) quotes the claim limitations that are allegedly taught by the reference;

been withdrawn.

(b) lists the column and line numbers cited by the Examiner as disclosing or suggesting these claim limitations;

(c) summarizes or quotes the subject matter described in the cited passages;

(d) asserts that:

The Office Action fails to identify the particular units that are deemed essential to the invention.

Furthermore, the characterization within the Office Action of the claim language appears to recast the express language found within the claims by redefining the invention in a manner different than from what is set forth within the claims. The Examiner's rejection on obviousness is mere conclusory statements without the explicit analysis supporting the rejection, and without articulated reasoning with rational underpinning to support the legal conclusion of obviousness, as required under KSR, [*Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007)][;]

and

(e) denies that the reference discloses, teaches, or suggests the claim limitations at issue:

- Thus Ishida '978 fails to disclose, teach, or suggest a bitmap data storage unit for storing bitmap data before transformation; a bitmap data acquisition unit for acquiring bitmap data from said bitmap data storage unit; an output unit for outputting data that is produced based on transformation results from said data transformation unit and processing results from said jaggy elimination processing unit.

(Br. 42-43 (emphasis omitted).) These arguments are unpersuasive because they are merely conclusory, i.e., they are not supported by an explanation of *which* claim limitations are not satisfied by the reference and *why*. *See Ex*

parte Frye, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential⁷) (an appellant may attempt to overcome an examiner's obviousness rejection on appeal to the Board by: (A) submitting arguments and/or evidence to show that the examiner made an error in either (1) an underlying finding of fact upon which the final conclusion of obviousness was based or (2) the reasoning used to reach the legal conclusion of obviousness; or (B) showing that the *prima facie* case has been rebutted by evidence of secondary considerations of nonobviousness).

Turning now to Karidi, the Examiner relies on this reference for a teaching of the following claim 7 limitations:

(1) a transformation rule retention unit that contains at least one bitmap data transformation rule composed of a pair of information on (a) a certain part of the bitmap data and (b) information indicating vector data that forms an image after transformation of the certain part of the bitmap data; and

(2) a data transforming unit that checks whether the information on a certain part of the bitmap data obtained by the bitmap data acquisition unit matches the information retained by the rule retention unit and, if a match is detected, replaces the information on the certain part of the bitmap data with information indicating the corresponding vector data. Final Action 15-16.

Figure 3 of Karidi is reproduced below.

⁷ Designated as precedential at
<http://www.uspto.gov/ip/boards/bpai/decisions/prec/index.jsp>.

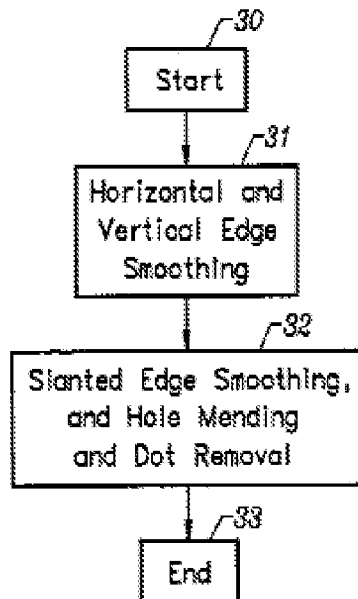


FIG. 3

As shown in Figure 3, the preferred embodiment of Karidi's invention smoothes the outline of the text through two main separate procedures 31 and 32. Karidi at [0043]. The Examiner (Final Action 16) specifically relies on the second procedure 32 for slanted edge smoothing, hole mending, and dot removal, which procedure is depicted in Figure 5, reproduced below (*id.* at [0059]).

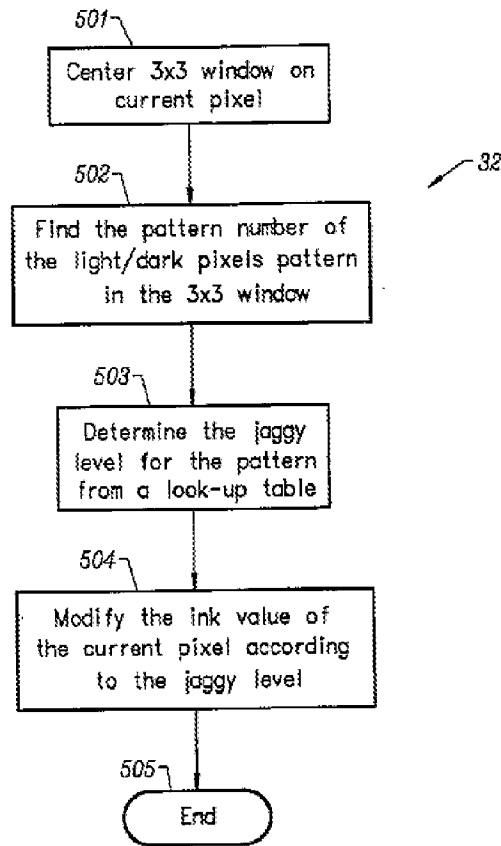


FIG. 5

Procedure 32 centers a 3x3 window on the current pixel (step 501), finds the pattern number of the light and dark pixels pattern in the 3x3 window (step 502), and then determines the jaggy level for the pattern from a look-up conversion table (step 503), whose contents are jaggy levels, which are zero (0), one (1), two (2), and three (3) (*id.*). The method then modifies the ink value of the current pixel according to the jaggy level (step 504) (*id.*).

These operations are described in greater detail in paragraphs [0053] and [0054], cited by the Examiner (Final Action 15-16). These paragraphs (minus Tables C and D) read as follows:

[0053] In the preferred embodiment, each pixel has a 3x3 neighborhood that is considered. The region is binarized into ink and background pixels using the threshold T_{dark} . *For each pattern of nine (9) ink or background pixels* in the window, a smoothing level is assigned with values ranging from zero (0) to three (3). The ink value of the center pixel is then modified in accordance to this smoothing level, which is also described in Table C herein below. . . .

[0054] The *distinct ink and background patterns* in the preferred embodiment and their corresponding smoothing levels, herein also referred to as jaggy levels, are given in Table D herein below. Patterns that are related to one another through a rotation or a reflection are assigned the same smoothing level. Only one of them is listed herein below in Table D. Furthermore, this list in Table D only shows those cases wherein the center pixel is an ink pixel. The smoothing level of the center pixel when it is a background pixel can be deduced from the binary complement of the list given in Table D.

(Emphasis added.) Appellant's arguments in the Brief (at 47-48) against the Examiner's findings in Karidi are in the above-discussed conclusory form and therefore are unpersuasive.

The Examiner concluded that it would have been obvious to modify the apparatus as taught by Ishida with the smoothing method and apparatus as taught by Karidi in order "to produce text images with improved smoothness for all edges," citing Karidi paragraph [000]2." Final Action 16. In view of this reasoning, we are not persuaded by Appellant's contention

that the rejection “is mere conclusory statements . . . without articulated reasoning with [a] rational underpinning to support the legal conclusion of obviousness, as required under KSR [*Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007)].” (Br. 47.)

Appellant specifically argues, for the first time in the Reply Brief, that “[p]aragraph [0054] and Table D of Karidi fail to identify within Karidi a step of checking whether or not the information on certain part of bitmap data matches.” (Reply Br. 15.) This argument will be given no consideration in this Appeal because it was not necessitated by a new point in the Answer and thus should have been made in the Appeal Brief. *See Ex parte Borden*, 93 USPQ2d 1473, 1473-74 (BPAI 2010) (“informative”⁸) (absent a showing of good cause, the Board is not required to address an argument newly presented in the Reply Brief that could have been presented in the principal Brief on Appeal).

For the foregoing reasons, we sustain the rejection of claim 7 for obviousness over Ishida in view of Karidi and also the rejection on this ground of dependent claims 8, 9, and 27, which Appellant treats as standing or falling with claim 7 (Br. 48).

⁸ Designated as an “Informative Opinion” at <http://www.uspto.gov/ip/boards/bpai/decisions/inform/index.jsp>.

B. Claims 18, 23, 28, and 29

In arguing the rejection of independent claims 18 and 23, Appellant essentially repeats the claim 7 arguments, which are likewise unpersuasive with respect to claims 18 and 23. We therefore sustain the rejection of claims 18 and 23 and the rejection of dependent claims 28 and 29, whose merits are not separately argued. *In re Nielson*, 816 F.2d 1567, 1572 (Fed. Cir. 1987).

THE REJECTION OF CLAIMS 3, 17, 22, 25, AND 26
(ISHIDA IN VIEW OF OKAZAKI)

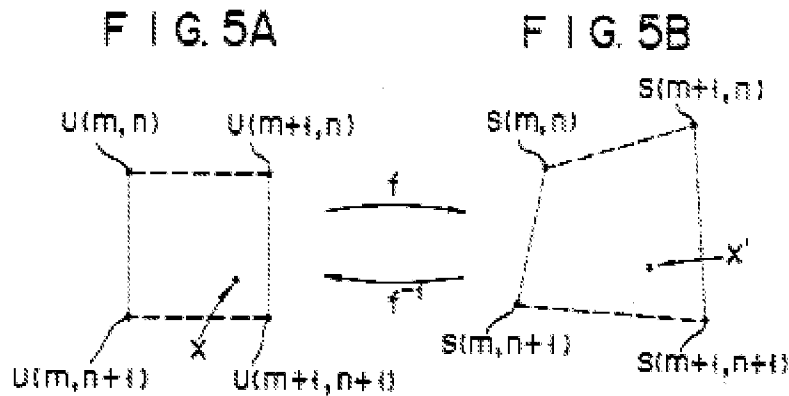
A. Claims 3, 25, and 26/3⁹

The Examiner (Final Action 7-8), in rejecting claim 3, relies on Ishida for teachings like those relied on in the above-discussed rejection of claim 7 and relies on Okazaki as teaching or suggesting the recited “inverse transformation unit” and “color determination unit (*id.*). Appellant’s arguments directed to Ishida are unpersuasive for reasons like those given above in the discussion of claim 7.

Okazaki discloses an X-ray imaging apparatus which can provide an image configured so as to closely approximate the original object by correcting the spatial distortion, thereby realizing a display wherein the image suffers so little distortion that an exact quantitative inspection can reliably be based on it. Okazaki, col. 1, ll. 50-56.

⁹ Claim 26 is multiply dependent on claims 3, 17, and 22.

Figures 5A and 5B are reproduced below.



Figures 5A and 5B are diagrams illustrating distortions of respective lattice points and their corrections, while Figure 6 shows a vector diagram expressing a lattice point distortion (col. 2, ll. 47-50). Figures 5A and 5B show the distorted and corrected images, respectively. A conversion “ f ” from the image of Figure 5A to that of Figure 5B indicates that the image is distorted, whereas the reverse conversion “ f^{-1} ” from the image of Figure 5B to that of “Figure 6A [*sic*; 5A]” indicates that the distorted image is corrected (col. 3, ll. 50-54).

A lattice test chart (Fig. 3B) having regularly arranged lattice points is used to obtain distortion vectors that are resolved into the X- and Y-directional components and stored into lattice point distortion vector tables (col. 3, ll. 24-26, 62-67). The lattice distortion vector table and a lattice point existing table can be used to obtain pixel position vector X' (Fig. 5B) before the correction, which corresponds to a pixel address vector X (Fig. 5A) after the correction (col. 4, ll. 10-15). Then, an intensity of the pixel at the pixel position vector X' is obtained (col. 5, ll. 26-27). Because the pixel

position vector X' does not always correspond to a pixel in the distorted image (pixel of the memory device), pixel intensities at four address points containing the pixel position are used to obtain the intensity by interpolation (col. 5, ll. 27-49).

Most of Appellant's arguments in the Appeal Brief (at 19-24) against the Examiner's findings in Okazaki take the above-noted conclusory form and are therefore unpersuasive. In response to Appellants' specific argument that "Okazaki . . . does not disclose a step for determining color" (Br. 32), the Examiner (Answer 22) quotes Appellants' above-noted disclosure that "[t]he color information *may be black and white binary*, or three-valued or more." Specification 9:10-11 (emphasis added). Because this definition of "color information" appears in Appellant's Specification, its citation in the Answer does not constitute a new point to be addressed in the Reply Brief. As a result, the new argument that the claimed "color of the position" is not the same as Okazaki's "intensity" (Reply Br. 9) is belated and will not be considered. The same is true of other new Reply Brief arguments, including that Okazaki fails to determine intensity "based on (all three): (i) - The position specified by said second coordinate information; (ii) - The first vector data produced by said vectorization unit; and (iii) - A color of a dot on said bitmap data." (*Id.*).

The Examiner concluded that it would have been obvious to apply Okazaki's inverse color mapping function to Ishida's image smoothing system in order to provide a more dynamic system and robust system for generating greater accuracy and output quality by reducing distortion in the

rendered image (“...*imaging apparatus which can provide an image configured so as to closely approximate the original object by correcting the spatial distortion, thus realizing a display wherein the image suffers so little distortion that an exact quantitative inspection can reliably be based on it.*” Okazaki col. 1[,] lines 51-56).

Final Action 8-9. In view of this stated rationale, Appellant is incorrect to argue that “[t]he Examiner’s rejection on obviousness is mere conclusory statements without the explicit analysis supporting the rejection, and without articulated reasoning with rational underpinning to support the legal conclusion of obviousness, as required under KSR, *Id.*” (Br. 22.)

For the foregoing reasons, we sustain the rejection of claim 3 and the rejection of dependent claims 25 and 26/3, whose merits are not separately argued.

B. Claims 17, 22, 26/17, and 26/22

Appellant’s arguments against the rejection of independent claims 17 and 22 essentially repeat the claim 3 arguments. We therefore sustain the rejection of claims 17 and 22 and the rejection of dependent claims 26/17 and 26/22.

DECISION

The rejection of claims 3, 17, 22, 25, and 26 under 35 U.S.C. § 103(a) for obviousness over Ishida in view of Ozaki is sustained, as is the rejection

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of claims 7-9, 18, 23, and 27-29 under § 103(a) for obviousness over Ishida in view of Karidi.

The Examiner's decision that claims 3, 7-9, 17, 18, 22, 23, and 25-29 are unpatentable is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2010).

AFFIRMED

kis

RADER FISHMAN & GRAUER PLLC
LION BUILDING
1233 20TH STREET N.W., SUITE 501
WASHINGTON, DC 20036